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A revision of the genus *Heteroparasitus* new status, with the description of *Heteroparasitus (Medioparasitus) athiasae* subgen. n., sp. n. from Spain and with a key to the genera of Pergamasinae (Acari, Gamasida, Parasitidae)

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A revision of the genus *Heteroparasitus* new status, with the description of *Heteroparasitus (Medioparasitus) athiasae* subgen. n., sp. n. from Spain and a key to the genera of Pergamasinae (Acari, Gamasida, Parasitidae). - The subgenus *Heteroparasitus* Juvara-Bals, 1976 is redefined and raised to genus rank. *Heteroparasitus* (*Medioparasitus) athiasae* subgen. n., sp. n. from Spain is described. Taxonomic problems concerning the genera *Leptogamasus* Trägardh, 1936, *Paragamasus* Hull, 1918 and *Ologamasiphis* Athias-Henriot, 1971 are discussed. The genus *Ologamasiphis* is divided into two subgenera *Ologamasiphis* s. str. and *Holzmannia* subg. n. *Valigamasus* Karg, 1993 syn. n. is a junior objective synonym of *Ernogamasus* Athias-Henriot, 1971. A key to the genera of Pergamasinae Juvara-Bals is presented.

Key-words: Acari - Gamasida - Parasitidae - Pergamasinae - *Heteroparasitus* - new subgenera - new species - taxonomy - key.

INTRODUCTION

The genus *Holoparasitus* Oudemans, 1936, widely distributed in the Palearctic region, presently includes 32 species. Additional species are likely to be found in areas of the northern hemisphere, which have not been adequately investigated.

Holoparasitus Oudemans was studied and revised by Oudemans (1936), Micherdzinski (1969), Holzmann (1969), Karg (1971, 1993), Juvara-Bals (1975) and Hyatt (1987). Holzmann (1969) erroneously used the name *Ologamasus* Berlese 1906 instead of *Holoparasitus* and recognized two subgenera: *Ologamasus* s. str. and *Ologamasiphis* Holzmann, the latter with dorsal and ventral shields separated in females. She included two species in *Ologamasiphis,* i.e.: *Ologamasus rotulifer* Willmann, 1940 and the new *Ologamasus minimus* Holzmann, 1969, but failed to designate a type species.

Micherdzinski (1969) followed Oudemans in using the name *Holoparasitus* and divided this genus into three species groups, i.e: the *H. calcaratus* group, the *H. pollicipatus* group and the *Ologamasiphis* group. He agreed with Holzmann's sub-

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genera but suggested that either *Ologamasiphis* should be raised to genus rank or the diagnosis of *Holoparasitus* should be extended. Karg (1971) modified the diagnosis of *Holoparasitus* to include the subgenus *Ologamasiphis* Holzmann. Athias-Henriot (1971a) considered *Ologamasiphis* as a distinct genus rather than a subgenus of *Holoparasitus.* She pointed out that the subgenus *Ologamasiphis* of Holzmann is unavailable because Holzmann did not designate a type species and designated *Pergamasus epigynalis* Willmann, 1940 as the type species of this genus.

Juvara-Bals (1975) distinguished two subgenera of *Holoparasitus*, *Holoparasitus* s.str. and *Heteroparasitus* Juvara-Bals, but considered *Ologamasiphis* as a separate genus rather than a subgenus of *Holoparasitus.* Hyatt (1987) reviewed and redefined *Holoparasitus* to include three subgenera, *Holoparasitus* s.str., *Ologamasiphis* and *Heteroparasitus.*

I have identified a new species from Spain in the Athias collection, which possesses a distinctive combination of characters that places it intermediate between *Heteroparasitus, Paragamasus* Hull, 1918 and *Ologamasiphis* Athias-Henriot, 1971. Consequently, *Heteroparasitus* is raised to genus rank and a new subgenus, *Medioparasitus* subgen. n., with *H. (Medioparasitus) athiasae* sp. n. as type species, is defined in the genus *Heteroparasitus.*

The confusions and the new data require a discussion of the generic and subgeneric concept of *Paragamasus* and *Ologamasiphis.*

The generic concept proposed by Juvara-Bals (1975) was the only one based on the differences in idionotal systems such as chaetotaxy, adenotaxy (gland pores), poroidotaxy (poroids), as well as on morphological characters used by other authors. The importance of these characters in taxonomy, as well as the notation employed for adenotaxy and poroidotaxy, was discussed for the first time by Athias-Henriot (1969, 1971b). Her observations have been further considered and the importance of idionotal systems in the taxonomy of the Gamasina and Ixodida has been recognized again (Krantz & Redmond, 1987; Johnston & Moraza, 1991; Klompen *et al.*, 1996; Lindquist & Moraza, 1998).

In the taxonomic part below I update the notation of the idionotal systems as applied to pergamasine mites, so as to redefine the genus *Heteroparasitus*, and I add additional characters to the previous descriptions of *H. tiroleusis* (Sellnick, 1968), *H. corouarius* (Karg, 1971) and *H. quadratus* (Witalinski, 1972). *Heteroparasitus* and *Medioparasitus* are integrated in the key of the subfamily Pergamasinae Juvara-Bals (1972) provided below.

MATERIAL AND METHODS

Most of the mites studied (69 specimens on 64 slides) are from the Athias-Henriot collection deposited in the Natural History Museum of Geneva (MHNG). The material was collected by Prof. H. Franz in Spain and Austria. These specimens are mounted in gum chloral and flattened, so that their idiosomal length and width cannot be measured. A few samples are from Germany and Poland (Witalinski leg., deposited in the Zoological Museum, Jagiellonian University, Krakow-ZMJU and in the MHNG) or Romania (Juvara-Bals leg., deposited in the MHNG). Some specimens are from the Willmann collection deposited in the Zoologische Staatssammlung, Munich, Germany (ZSM).

Generally, the morphological terminology and the system of setal notation for the legs and palpi follows that established by Evans and Till (1979), the system of setal notation for the idiosoma follows that of Lindquist and Evans (1965), with modifications for the chaetotaxy of the opisthogaster as given by Lindquist (1994). The notation of adenotaxy and poroidotaxy follows the system of Johnston and Moraza (1991). Measurements of female structures were taken as follows: Epigynium height (h) is the midline from the tip of this shield to its posterior margin; epigynium basal width (b) represents the length of the posterior margin (Fig. 4D). The distance st-st' is the distance between the two setae of the pair inserted on the sternal and genital shields. Measurements are given in micrometers.

In the description of the opisthogastric shield (ventrianal shield auct.) only the ventral (opisthogastric) pairs of setae were considered, the three circumanal setae were excluded because they are constant among the pergamasine species. The male genital orifice of some genera of Pergamasinae, possesses a structure between the tritosternum and the genital lamina, which I name subgenital sclerite (Fig. 3C, see arrow).

DESCRIPTIONS

Genus ***Heteroparasitus*** Juvara-Bals, 1975, status nov.

Diagnosis. Dorsal shield of adults entire, podonotal region with 18-20 pairs of setae, opisthonotal region with 21-23 pairs of setae. Dorsal adenotaxy with 3 –5 pairs of gland pores, poroidotaxy with 15 pairs. Opisthogastric shield with 7 pairs of ventral setae. Peritrematal shield in females fused or not with dorsal shield; opisthogastric shield separated from dorsal shield; digitus mobilis (d.m.) of chelicera with 4 teeth. Holodorsal shield in males fused with opithogastric region. Femur II with setiform axillary process.

Subgenus ***Heteroparasitus*** s. str.

Diagnosis. Podonotal region with 19 pairs of setae, lacking z3, s2, s3, r1; poroidotaxy with 7 pairs of poroids (idj1, idj3, idr4, idz4, ids4, idj6 and idz6 which migrated onto opisthonotum); adenotaxy with 5 pairs of gland pores (gdj2, gdz5, gds4, gdr4, gdz6). Peritrematal shield fused with dorsal shield, peritrema with three gland pores along peritrematal groove (gp1, gp2, gp3) and with two poroids (ip1, ip2). Opisthonotal region of dorsal shield with 21 pairs of setae; poroidotaxy with 10 pairs of poroids; adenotaxy with one pair of gland pores. Idiosomal venter with gland pores gv1, gv2 and gv3 present. Gland pore gv2 double (with two glands opening through two pores on an ovoidal sclerotization). Presternal sclerite joined to sternal shield in female, two additional small triangular microsclerites remain separate; male with subgenital sclerite ellipsoidal, flanked by triangular presternal platelets. Tectum trifid. Gnathosomal sclerotization, in male, with cuticular break under hypostomatic seta 3; hypognathal groove large, with 12-14 denticled ridges, corniculi with protuberance on inner face; palptrochanter seta v2 pilose, palpfemur with setae al1simple but with al2 stout and slightly pilose. D.m. of chelicera in females with usually 4 teeth (3 or 4 in *H. quadratus* according to Witalinski, pers. com.). Femur II in males with setiform axillary process, with an apophysis on genu and tibia and with short, simple setae pd1, pd2 on femur IV.

Type species: *Pergamasus tirolensis* (Sellnick, 1968) by original designation. Holotype: one female, collected from "Neuleutasch bei Seefeld, Tirol, 1300m über M. Lärchwiese, VIII. 1964" and deposited in Sellnick's collection, Zoological Institut and Museum, University of Hamburg, Germany.

Other species included: *Holoparasitus coronarius* (Karg, 1971), *Holoparasitus quadratus* (Witalinski, 1972).

Heteroparasitus tirolensis (Sellnick, 1968)

Material examined: AUSTRIA: Niederösterreich: A314, 1♀, 1♂, Wolfsbach near Admont, riverside forest, back-water of the river Enn, sifting of decayed tree stumps, 22.10.1943; X436, 1♀, sifting of fir litter under *Vaccinium myrtillus*, 800 m, road from Mitterdorf im Mürztal to Stallglam, 9.9.1944; X1551, 1♀, litter from *Ericetum* near northern slope, Manhartstal near Grossau, 15.9.1960; – Steiermark: T256, 2♀, fir woods, sifting of moss under *Vaccinium*, 1400-1500m, Seckhauer Zinken above Jörgerhütte, 4.6.1960; X1576, 1♂ forest litter, Lassnitzklamm near Deuschlandsberg, 14.7.1964 ; X1585, 1♀, 1♂, beech and fir litter, forest near the road Salba to Gaberl, 26.7.1964; X1626, 1♀, litter, beech woods, Koralpe, southern slope near Urbani chapel, 18.8.1965; X1575, 1♀, sifting of moss and litter, conifer woods, road to Trahütte and Glashütte, Weststeiermark, 11.7.1964. All this material is in MHNG-Athias collection. – GERMANY: 7♀, 6♂, 1 deutonymph, litter in a mixed forest (*Tilia*, *Fagus*, *Fraxinus*, *Abies*, *Picea*), Petersdorf near Regensburg, 7. 9. 1999, leg. W. Witalinski. Material deposited in ZMJU. – ROMANIA: Meridional Carpathians: 1♀, 1♂, deciduous forest litter, Berzeasca, Almaj Mountain, 15.8.1970, leg. I. Juvara-Bals. Two slides deposited in MHNG. – SLOVENIA: Carniola: 1♂, Radna Cave, 5.3.1918, leg. K. Absolon (no775, Biospeologica Balcanica). One slide deposited in ZSM- Willmann collection.

DESCRIPTION

Only the characters not mentioned in the previous taxa descriptions are noted.

Female

Idiosomal dorsum (Fig. 1B). Podonotal region with 19 pairs of setae (j1-j6; z1, z2, z4-z6, s1, s3, s4-s6, r3, r4, r5). Pore-like structures including 7 poroids and 5 gland pores. Opisthonotal region with 21 pairs of setae, Z2, S6 absent; adenotaxy with one gland pore, poroidotaxy including 10 pairs of poroids (idJ1, idJ2-double, idJ3, idJ4; idZ4, idS4, idZ5, idR1, idS7). Peritrematal region as in figure 1A.

Length of setae: j1 =48-54µm; other j setae about 48µm, setae of s series about 42µm, seta r5 =27-30µm, z1=17µm; setae on opisthonotum uniform, their lengths about 36-42µm.

Idiosomal venter. Sternal shield subrectangular, sternal setae moderately long, st1 =48µm, st2 =36µm, st3 =44µm; gland pore gv1 present. Paragynial shield with small ventral protrusion; metagynial sclerites short, rounded, with a median trapezoidal thickening (Fig. 2 B, C, see arrow). Endogynium a denticulate cup supported by metagynial and inner paragynial sclerites. Epigynium heptagonal, its apex roun-

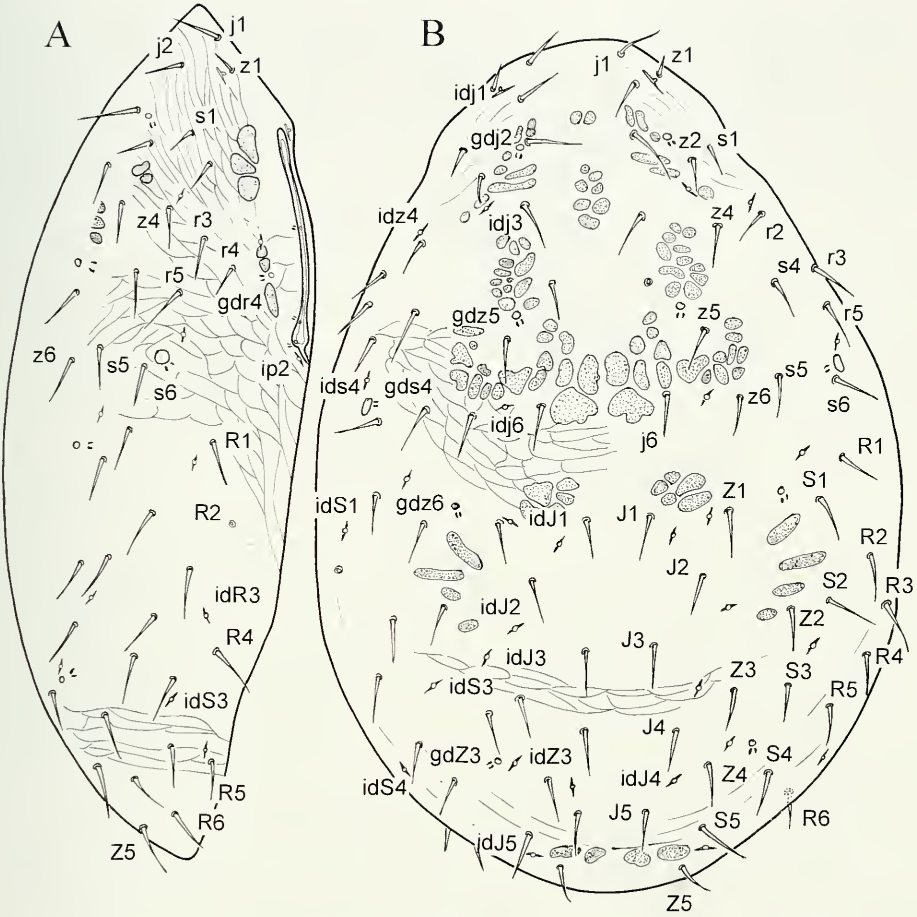

FIG. 1

Heteroparasitus tirolensis (Sellnick). Female: A-idiosoma, lateral view; B-idiosoma, dorsal view (modified after Juvara-Bals, 1975).

ded, with a little, terminal tip on its top; subapical structure conspicuous, hyaline wing-like, its anterior margin with median concavity and two lateral thickenings (Fig. 2A). Opisthogastric shield with 7 pairs of ventral setae and 3 circumanal setae; JV4, ZV5 lacking, JV5 usually inserted on soft cuticule, sometimes on opisthogastric shield. Adenotaxy with two gland pores, gv2 double and gv3; poroidotaxy including ivo2, ivo3 and ivp on soft cuticule. Length of setae: ZV3, JV5 =48µ, JV3 =30µm, others about 36µm.

Legs. Coxa II with palmate ridge situated anterolaterally; trochanter IV with setae pd1 and pd2 short, simple. Measurements: Tarsus I =150-172.5µm; tarsus IV = 184-195.5mm. Epigynium: height (h) =179-198µm, length of base (b) =172.5-207µm, st5-st5 '=115-147µm, h/b = about 1. Sternal shield: st1-st1'= 69-75µm, st2-st2' =87-96µm, st3-st3' =97-103µm.

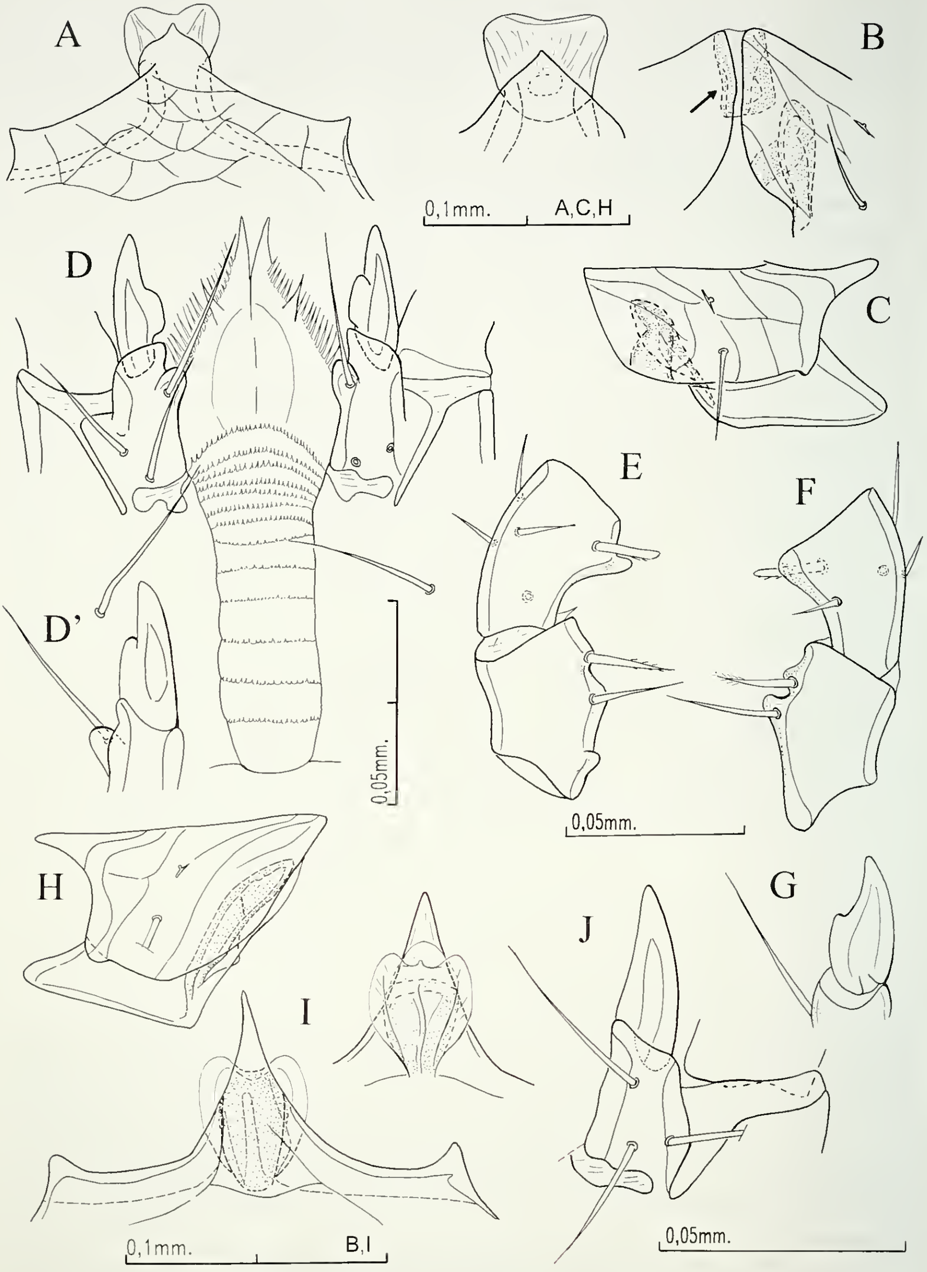

FIG. 2

Heteroparasitus tirolensis (Sellnick): female: A, B, C; male: D, E. *H. coronarius* (Karg): female: H-I; male: F, G. *H. quadratus* (Witalinski): J. Female: A, I- apex of epigynium and subapical structure; B, C. H-paragynia and metagynial sclerite. Male: D-gnathosoma, ventral, D'- corniculus, dorsal; E, F-palptrochanter and palpfemur; G, J-corniculus, ventral.

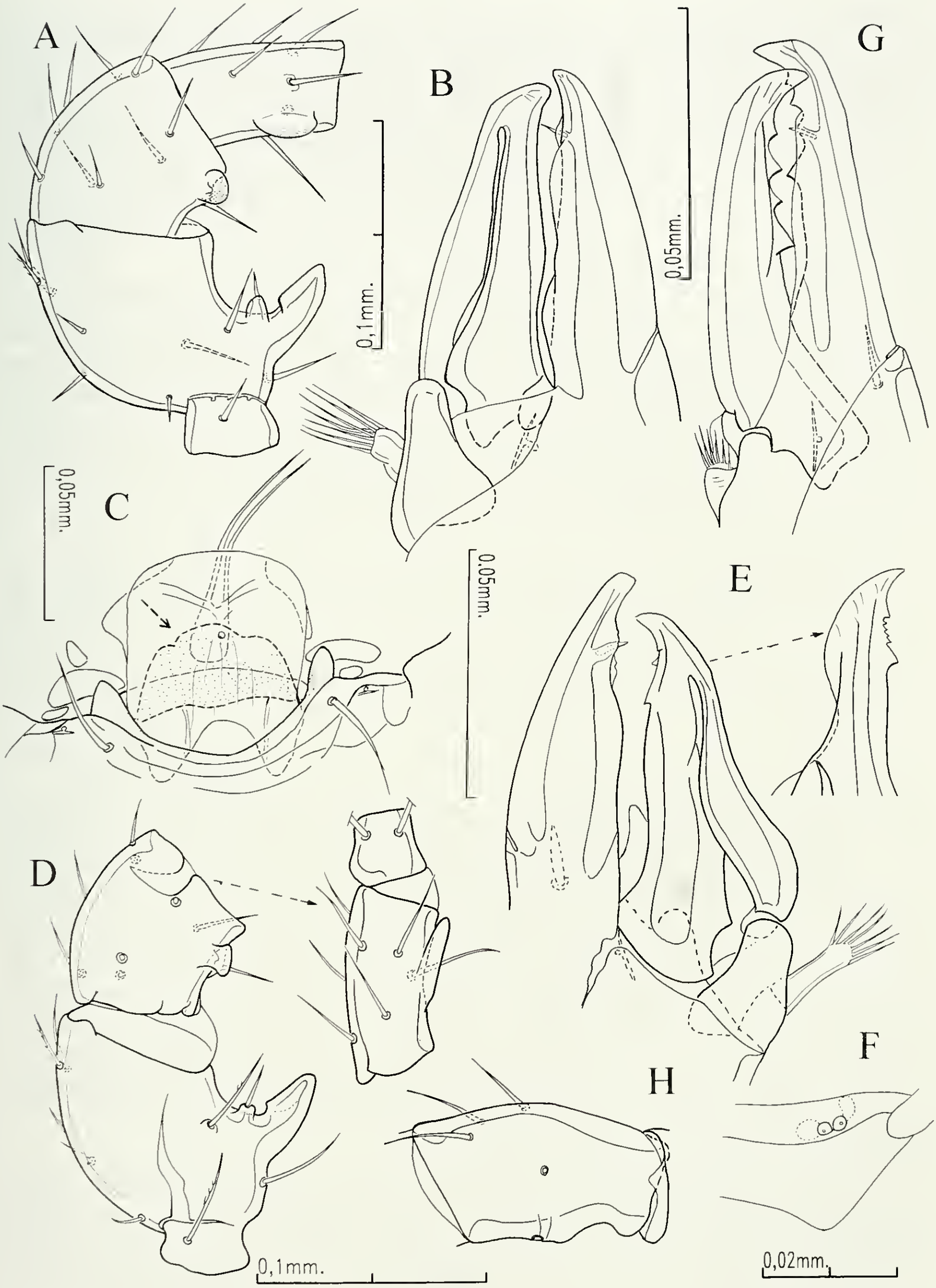

FIG. 3

Male: *Heteroparasitus tirolensis* (Sellnick): A, B. *H. coronarius* (Karg): C-F; H. *quadratus* (Witalinski): H. Female: *H. quadratus* (Witalinski): G. A, D- leg II femur, genu, tibia; C-genital lamina, anterior margin of sternal shield; H-trochanter IV; B, E, G-chelicera, paraxial view; F-opisthogastric glande pore gv2.

Male

Idiosomal dorsum. Idionotal systems as in female, setal lengths: j1 =36-42µm, j2 =48µm, s setae =30-35µm; setae on opisthonotal region 24 - 30µm.

Idiosomal venter. Sternogenital shield reticulated, with a marked convex sclerotized line behind second pair of sternal setae (st2). Genital lamina square, simple, with straight anterior margin and two lateral protuberances. An ellipsoidal sclerite behind genital lamina and between presternal sclerites and base of tritosternum. Genital lamina located in a concavity surrounded by prominent lobes. Sternal setae, st2, st3 length =24µm, st1 = 40µm; opisthogastric setae =24-30µm.

Gnathosoma. Tectum with three short prongs. Palptrochanter with proximal tubercle, v1 simple, v2 pilose, both setae inserted on small protuberances; palpfemur with elongated protuberance near seta al1 (Fig. 2E). D.m. of chelicera with one denticle (two in Romanian specimens), digitus fixus (d.f.) with slightly serrated masticatory ridge; arthrodial cuticule (membrane sensu Evans and Till, 1979) formed by paraxial brush-like and antiaxial setiform processes (Fig. 3B). Corniculi with median protuberance; another protuberance at base of hypostomatic seta 1 (Fig. 2D'); hypognathal groove with extension between corniculi, cuticular break below hypostomatic seta 3 (Fig. 2D).

Legs. Coxa I with denticulate ridge (Fig. 6N). Coxa II with palmate ridge anterolaterally (Fig. 6M). Armature of leg II (Fig. 3A): axillary process of femur with a seta, genu with medially rounded apophysis, and tibia with small blade-like apophysis. Trochanter IV with setae pd1 and pd2 simple and short.

Measurements: tarsus I =149.5-161µm, tarsus IV =172.5-184µm.

REMARKS

H. tirolensis was described by Sellnick (1968) based on female specimens from Tirol (Neuleutasch bei Seefeld) and from Markenstein in the Wiener Wald.

Karg (1971) collected *H. tirolensis* adults of both sexes in Germany. He compared his material with *Ologamasus absoloni* Willmann, 1940 described from Slovenia (Carniola) (Biospeologica Balcanica, loc.775) and stated that the male which was originally described under *O. absoloni* is conspecific with the males of *H. tirolensis* from Germany.The female of *O. absoloni,* on which the original description is based (Willmann, 1940) belongs to a different species and is the type of *Holoparasitus absoloni* (Willmann, 1940). Karg (1971) briefly described the male and gave illustrations of the ventral part of the gnathosoma and the armature of the leg II. Juvara-Bals (1975) added some characters to the original description which supported the distinction of two subgenera in *Holoparasitus.*

Karg (1993) considered *H. tirolensis* to be rare in central Europe, with a preference for damp substrates, beech and alder litter. This species was recorded also from other habitats in Austria (Schmölzer, 1995), in Romania (Juvara-Bals, 1975), in Slovenia (Willmann, 1940) and in Poland near Krakow (Witalinski, pers. comm.).

Heteroparasitus coronarius (Karg, 1971)

Only the morphological characteristics not described or illustrated in the previous taxa descriptions are presented.

Material examined: AUSTRIA: Steiermark: A23, 2♀, 1♂ sifting of alder litter, near the Mühlauer river close to a waterfall, Mühlau by Admont, 20.4.1940; A278, 1♀, 1♂, sifting of decayed tree stumps, Leichenberg by Admont, southern slope, 1.11.1942; X582, 1♀, 1♂, sifting litter, beech woods, Damberg near Steyer, northern slope, 27.4.1946; – Burgenland: X1690a, 2♂, 1♀, beech litter, Mandelstein by Weitra, 1.10.1966; – Niederösterreich: X1649, 1♀, litter and decayed tree stumps, Buchenberg by Waidhofen near Ybbs, 18.5.1966.

All the slides are deposited in the MHNG-Athias collection.

DESCRIPTION

Female

Idiosomal dorsum. Length of setae: j1 = 48-50mm; podonotal setae 36-42µm; opisthonotal setae 24-36µm.

Idiosomal venter. Paragynia with small protrusion, metagynial sclerites slender, elongated (Fig. 2H). Epigynium heptagonal, its apex long, triangular, subapical structure round, sclerotized, covered by a fine, hyaline cuticle (Fig. 2I). Length of sternal setae about 92µm; opisthogastric setae about 30µm.

D.m. of chelicera usually with four teeth; one specimen (X582/Q272) with three teeth on one d.m. and four on the other.

Legs. Coxa II and femur IV as in male. Measurements: tarsus I = 147-161mm, tarsus IV = 177-184µm. Epigynium: h =180.5µm, st5-st5' =122µm, b = 149.5µm, h/b =1,21. Sternal shield: st1-st1' = 61µm, st2-st2' = 94.3µm, st3-st3' = 106µm.

Male

Idiosomal dorsum. Length of setae: j1 = 48-54µm, seta s1 =12µm, other s setae 24-36µm; setae on opisthonotum about 24µm.

Idiosomal venter. Genital lamina situated in a slight concavity bordered by two pronounced protuberances; its shape trapezoidal, with lateral corners folded, its anterior margin straight. Ellipsoidal sclerite between genital lamina and tritosternum with ribbon-like base (Fig. 3C). Sternogenital region reticulated, with marked line behind second pair of sternal setae, gland pore gv2 double (Fig. 3F). Length of sternal setae: st1 =42µm, st2 = 36µm, st3 =30µm; length of opisthogastric setae about 24µm.

Gnathosoma. D.m. of chelicera with 3-6 denticles, d.f. oligodont, some denticles beside pilus dentilis; arthrodial cuticle with brush-like process paraxially (Fig. 3E).

Palptrochanter with seta v1 simple and v2 pilose, both situated on rounded protuberances (Fig. 2F). Corniculi with inner protuberance (Fig. 2G).

Legs. Coxa I paraxially with a ridge formed by small and large denticles (Fig. 6K). Leg II: coxa with short rounded denticulated ridge anterolaterally (Fig. 6J); axillary process of femur with seta; genu with small trapezoidal apophysis medioventrally; tibia bearing long blade-like apophysis, its tip reaching distal margin of tibia; base of tarsus humped (Fig. 3D). Femur IV setae pd1 and pd2 simple and short, tarsus IV as in *H. tirolensis* (Fig. 6L).

Measurements: tarsus I =145-152µm; tarsus IV =165.6-177µm.

REMARKS

Holzmann (1969) inadvertently indentified specimens found in litter of deciduous forest near Erlangen (Germany) as *Holoparasitus (Ologamasus) rotulifer* (Willmann,1940). On the base of Holzmann's descriptions and drawings Karg (1971) recognized that they belong to a new species, which he named *H. coronarius. Holoparasitus rotulifer* is another, valid species related to the *Holoparasitus* s.str. species, whose males are provided with an excipulum. Males of the related *H. tirolensis* and *H. coronarius* can be separated by the characteristics of the armature of leg II, the corniculi and the chelicera. The shape of the epigynial apex, which is triangular in *H. coronarius* and rounded in *H. tirolensis*, distinguishes females; other differentiating characteristics are the shape of the endogynium and of the metagynial sclerites. Karg (1971) thought that *H. coronarius* probably occurs in the litter of deciduous forest in Europe. Koehler (2000) found it in forest soil contamined with TNT in Harz, Germany. I have identified this species only in samples from Austria. The distribution of this species remains poorly known.

Heteroparasitus quadratus Witalinski, 1972

Material examined: POLAND: 2♀, 2♂ Myslenice near Krakow, Southern Poland, type locality, litter in a mixed forest, 10.11.1969, leg. W.Witalinski. Material deposited in MHNG.

REMARKS

I studied the material from Poland, kindly send to me by W.Witalinski. The following observations and some measurements are added to the original description (Witalinski, 1972).

In the original description Witalinski noted only 3 teeth on the movable digit of the chelicera. Witalinski and myself checked this character in a greater number of females and found that the number varies between 3 and 4 teeth (Fig. 3G).

The male has the same sclerotization break under the corniculus as males of the other species included in this genus (Fig. 2J). Trochanter IV (Fig. 3H) bears a flat protuberance on its ventral side. The reticulated ridge of coxa I is formed by 3 large denticles above a line of 9 fine denticles (Fig. 6P); coxa II has a short ridge formed by 6-7 denticles (Fig. 6O).

Measurements. Male: tarsus I =138µm; tarsus IV =184-195µm. Female: tarsus I =145-150µm; tarsus IV =196µm; epigynium: h =196µm, b =176µm, h/b =1.1, st5-st5' =127-136µm; length of sternal shield setae 60µm.

Subgenus ***Medioparasitus*** subgen. n.

Type species: *Heteroparasitus (Medioparasitus) athiasae* sp. n., by present designation and by monotypy.

Diagnosis: Dorsum generally with long setae, their tips reaching alveoli of following row of setae. Podonotal region apparently with 20 pairs of setae, opisthonotal region with 23. Tectum triangular. Gland pore gv1 on sternal shield absent. Peritrematal shield of females united with holodorsal shield anteriorly and free posteriorly. Leg II of males with spurs only on femur and genu, femur IV with setae pd1 and pd2 short and pilose; subgenital sclerite with denticles.

Description. Characteristics of the idionotal systems cannot be properly observed because the specimens are mounted and the sclerocuticle is folded or crushed.

Idiosomal dorsum. Dorsal shield setae long, except for z1, s1, s2, their tips reaching following row; setae J5, Z4, Z5, S3, S4, S5 three times longer than the other one. Podonotal region, apparently with 20 setae (z3, r4 lacking); opisthonotal region with 23 setae, S2 and perhaps some submarginal setae (UR) absent. Adenotaxy: gland pores gdz5, gds4, gdZ3 present. Poroidotaxy: podonotum with 5 pairs of poroids, opisthonotum with only 7 poroids observable. Peritrematal shield of females free, gland pore gdr4 and ip2 opening on soft cuticule; two other gland pores, gp1 and gp3 located in peritrematal groove.

Idiosomal venter. Female sternal shield lacking gland pore gv1, opisthogastric shield with 7 pairs of ventral setae. Male with platelets surrounding genital lamina and subgenital sclerite.

Gnathosoma. D.m. of chelicera in females with 4 teeth; d.m. in males with row of 6-7 denticles, d.f. oligodont. Hypostome with short, fan-shaped internal malae. Tectum triangular.

Legs. Armature of leg II in males: tibia without spur, genu with one spur, and axillary process of femur very smal, bearing seta. Leg IV: femur with pd1 and pd2 small and pilose, tibia with seta pl1 stout and pilose, tarsus with seta pd2 very long.

Heteroparasitus (Medioparasitus) athiasae sp. n.

Type material: SPAIN: Sp408 slide J430 1♂, holotype; paratypes: 3♀, 3♂, Montes del Invernardero near Verin (Provincia Orense), Sierra de San Mamed, Campobecerros, sifting of litter near a stream, 24.7.1955 .

Other material: SPAIN: Sp42, 2♂, Ceiro de Mirador, Sierra de Luna near Algesiras (Andalusia), sifting of litter and humus under *Erica* sp., 28.2.1951; Sp211, 2♀, 1♂, surrounding of Pontevedra, Cuesta del Ralo Saluda, sifting of litter under *Cyprus*,1.7.1952; Sp483, 1♂, 1♀, ·Isela de Onc, Prov. Pontevedra, sifting of litter under *Ulex europaeus*, 4.8.1956; Sp485, 1♀. Near the road Gondomas-Tuy (Sierra de la Grora), Bayona, sifting of litter (*Quercus* sp. forest), 5.8.1956; Sp500, 2♀, surroundings of Ezaro, south of Cabo Fisterra, sifting of litter (*Quercus robur* forest), 15.8.1956; Sp571, 2♂, Sierra de Son (Leon) near San Feliz de las Lavanderas, Astorga, sifting of litter under *Quercus* and *Erica arborea*, 11.8.1957; Sp567, 3♀, 3♂, Rio Duerna valley, Molina Ferreda near Astorga, sifting of litter of *Quercus pyrenica* and *Erica arborea*, 10.8.1957; Sp579 1♂, 4♀ Near San Saturino (Lugo), sifting of litter under *Rubus*, 15.8.1957; Sp587 1♂, El Fito, West of Aviles, (Oviedo), sifting of litter under *Betula* sp., *Quercus* sp., 16.8.1957; Sp496, 6♂, 1♀, Sierra, north-west of Outes, near Noia (La Coruna), sifting litter, oak forest, 13.8.1956.

All the material is deposited in MHNG-Athias collection.

DIAGNOSIS

Adults of this species are readily recognized by the characters given for the subgenus. In females the peritrematal shield free posteriorly, the d.m of chelicera with 4 teeth and the ventrianal shield with 7 pairs of setae. The male's particularities are the shape of the subgenital sclerite, which is rectangular and denticulated, and the leg II with simple triangular spurs on femur and genu.

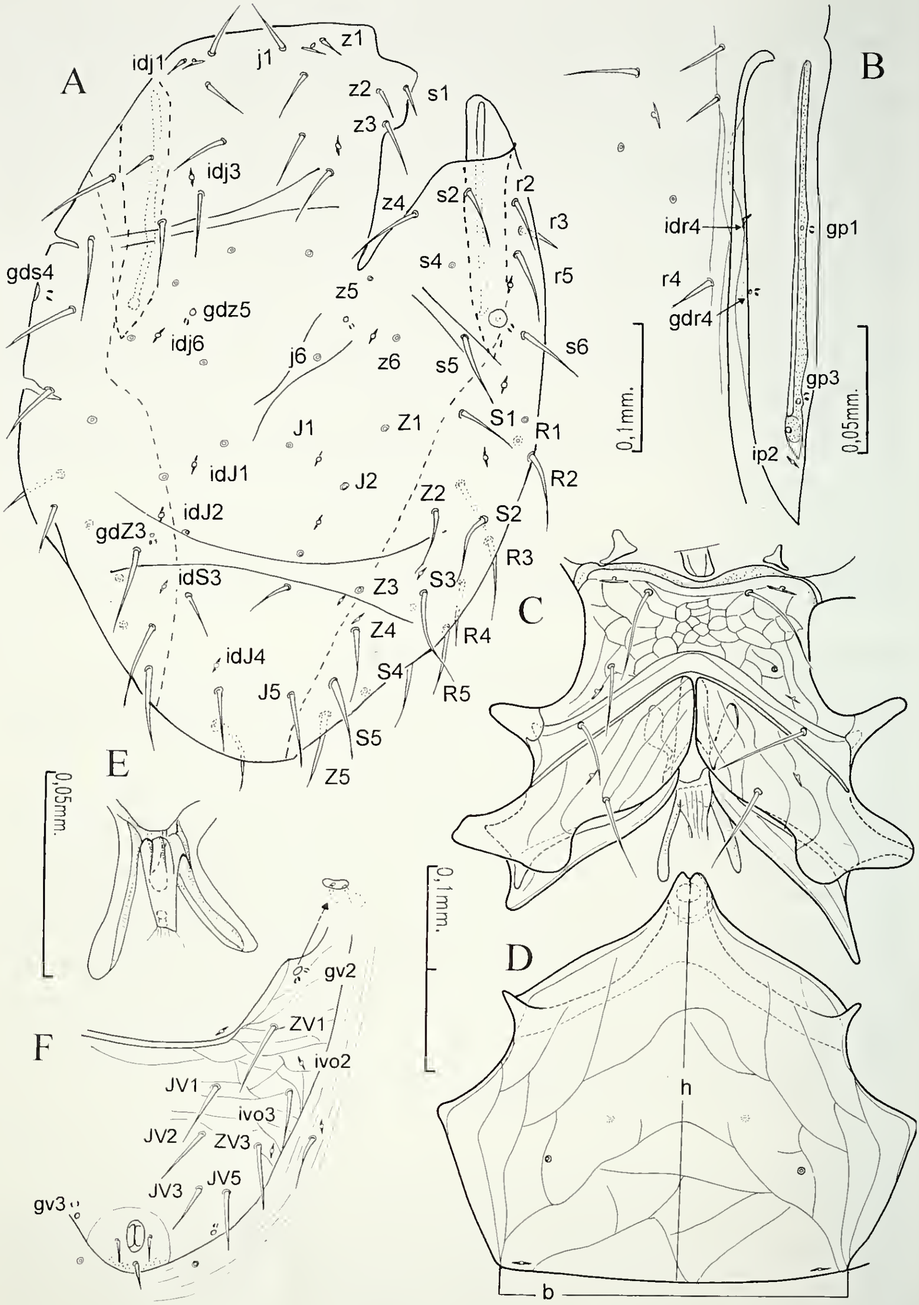

FIG. 4

Medioparasitus athiasae sp. n. Female: A-idiosoma, dorsal view; B-peritrematal region; C-sternal shield, paragynia and endogynium; D- epigynium; E- endogynium, F-opisthogaster.

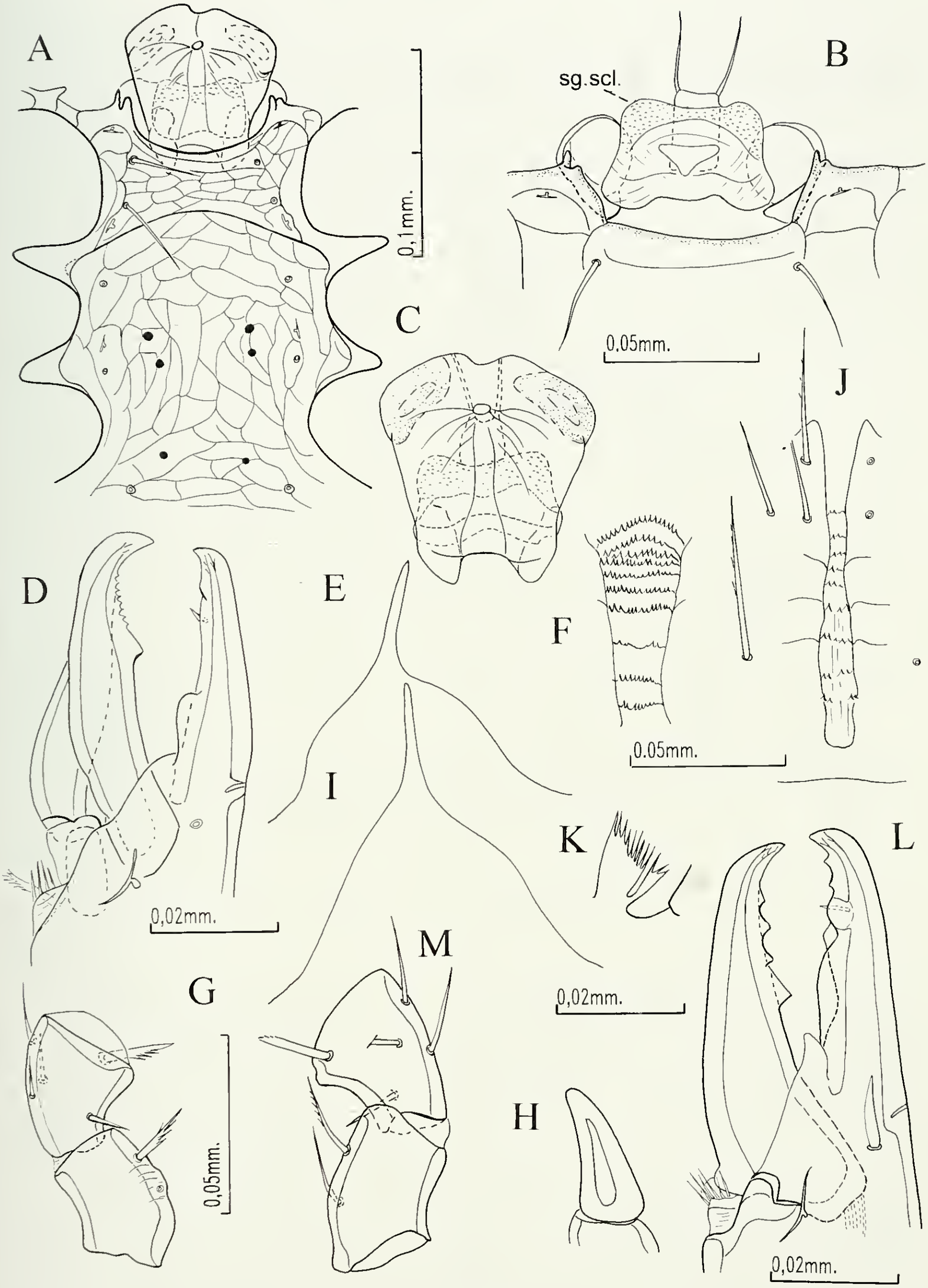

FIG. 5

Medioparasitus athiasae sp. n. Male: A-H. Female: I-M. A-sternogenital region; B-genital region with subgenital sclerite (sg. scl.); C-genital lamina; D, L-chelicera, antiaxial; E, I-tectum; F, J-hypognathal groove; G, M-palptrochanter, palpfemur; H-corniculus; K-internal mala.

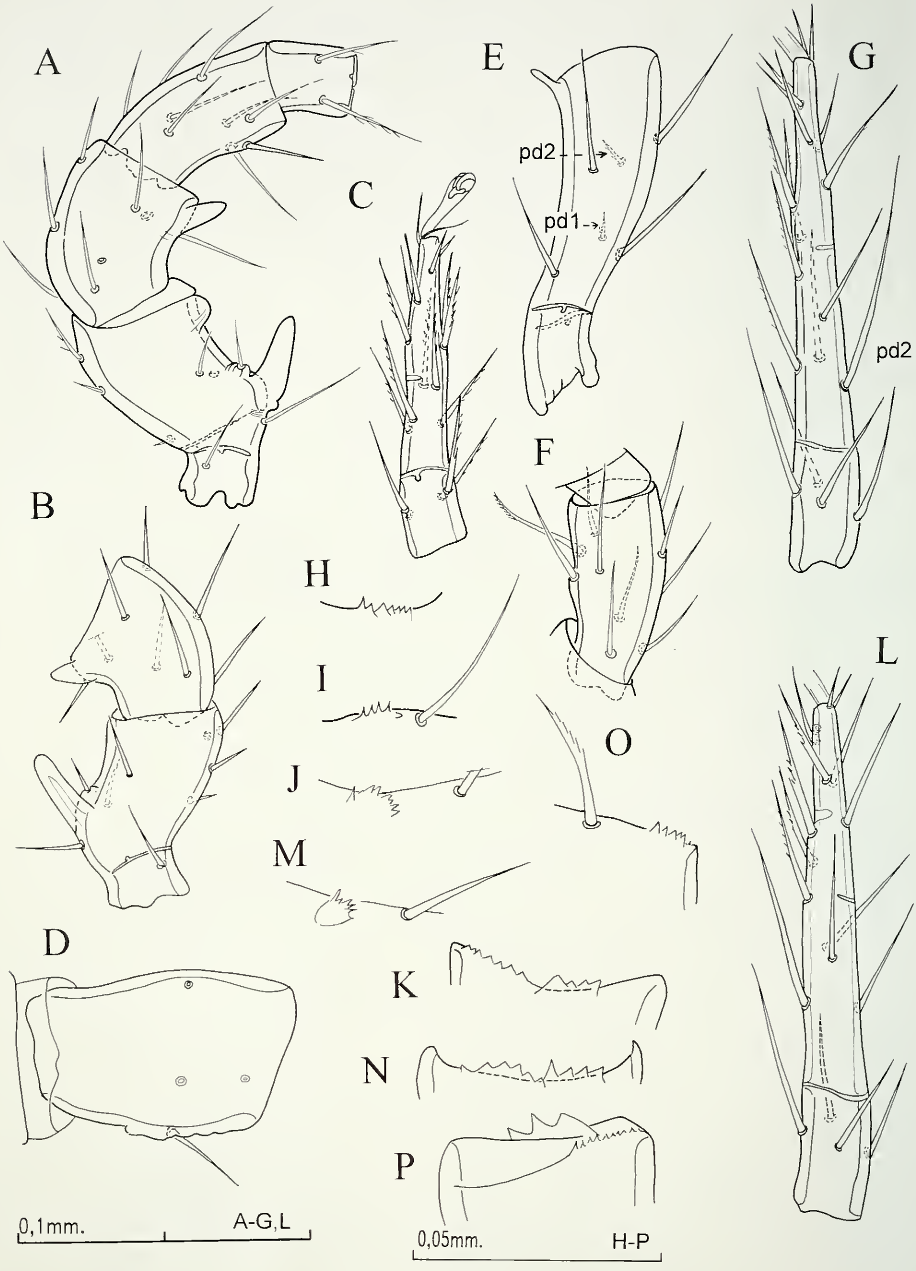

FIG. 6

Male. *Medioparasitus athiasae* sp. n.: A-I; *Heteroparasitus coronarius* (Karg): J, K, L; *H. tirolensis* (Sellnick) : M, N; *H. quadratus* (Witalinski): O, P. Leg II, antiaxial view: A-femur, genu, tibia (Sp 408); B-femur, genu (Sp 496); C-tarsus. Leg IV, ventral view: D-trochanter; E-femur; F-tibia; G, L-tarsus. Denticulated ridge, coxa I-H, K, N, P; idem, coxa II-I, J, M, O.

DESCRIPTION

Female

Idiosomal dorsum (Fig. 4A). Length of idiosomal setae: podonotum j1 =42-45µm, s1 =6-7µm; r2, r3, s2 =13-14µm; other setae about 42-48µm; opisthonotal setae from 48µm (J3, S3, S4) to 54 µm (S5, Z5).

Idiosomal venter. Peritrematal shields free posteriorly (Fig. 4B). Presternal sclerites fused to sternal shield, except for two little pieces. Sternal shield narrow distinctly reticulated, with prominent arched line between st2 and st3 (Fig. 4C). Length of sternal setae: st1 =54µm, st2 =60µm, st3 =48µm. Gland pore gv1 absent. Posterolateral protrusion of paragynial shield large and rounded; metagynial sclerite small, ellipsoidal (Fig. 4C). Epigynium septagonal, central apex with small notch, lateral angles with sharp prongs; subapical structure small, rounded, extended on dorsal side by triangular cuticular formation ending in lateral prongs (Fig. 4D). Endogynium apron-like, flanked by two elongated sclerotized strips (Fig. 4E). Opisthogastric shield with 7 pairs of setae, their lengths 42-48µm, and with 3 circumanal setae; gland pore gv2 (double) and gv3 on cuticule (Fig. 4F).

Gnathosoma. Tectum triangular, with simple slender central prong (Fig. 5I). Hypognathal groove with 9 oligodent rows; anterior hypostomatic seta and palpcoxal seta slightly pilose, others simple; internal malae fan-shaped, fimbriated; corniculi conical (Fig. 5J, K). Palptrochanter with v1 simple, v2 pilose, palpfemur with al1 pectinate and with small rounded protuberance at base of al1 (Fig. 5M). D.m. of chelicera with 4 teeth, d.f. with two denticles antiaxially, one paraxially alongside pilus dentilis (Fig. 5L).

Measurements: tarsus I =127-140µm, tarsus IV =161-179µm. Epigynium: h =173-202µm, b =156-177µm, st5-st5' =103-129µm, h/b =1.13. Sternal shield: st1-st1' =46-55µm; st2-st2' =69-87µm, st3-st3' = 92-127µm.

Specimen collected near Noia (Sp496): tarsus I =110-127µm; tarsus IV =150-159µm.

Epigynium: h =166-170µm, b = 170-179µm, v5-v5' =108-115µm, h/b =0.96.

Male

Idiosomal dorsum. Chaetotaxy with 20 pairs of setae on podonotal region and 23 pairs on opisthonotal region, setae simple, their lengths: j1 =36µm, z1 =12µm, s2-s3 =18µm, s6 =48µm, j3-j4 =54µm, other setae of series z =36-42µm. Opisthonotal setae of series J and S =48µm, setae of series R =42µm. Adenotaxy: gland pores gdj2, gdj4, gdz6, gdZ1 and gdZ4 lacking. Poroidotaxy: podonotum with 5 pairs of poroids, opisthonotal poroids not observable.

Idiosomal venter. Holoventral shield reticulated, with prominent procurved line passing behind sternal setae 2 (Fig. 5A). Anterior margin of sternal shield flanked by two protuberances and concave at location of genital lamina. Genital lamina trapezoidal, anterior margin folded, its angles appearing rounded (Fig. 5C). Subgenital sclerite rectangular, situated between base of tritosternum and genital lamina, with ventral and dorsal side partially denticulated and with a central triangular opening. This structure flanked on each side by two circular platelets supporting and restricting, probably, displacement of rectangular structure and genital lamina when open

(Fig. 5B). Opisthogastric shield with 7 pairs of ventral setae, their length from 24 to 36µm. Gland pore gv1 absent, gv2 double.

Gnathosoma. Hypognathal groove with 9-10 clearly denticulated rows, palpcoxal seta simple (Fig. 5F). Corniculi simple, conical (Fig. 5H). Tectum triangular, with central prong long, slender and with lateral margins rounded (Fig. 5E). Palptrochanter with v1 simple, v2 pilose, palpfemur with small protuberance near base of spatulate and pectinate anterolateral seta (al) (Fig. 5G).

Chelicera (Fig. 5D). D.f. without denticles, only with a rounded protuberance proximally, d.m. with 5-8 denticles and a larger tooth; apex of both digits slightly hooked. Arthrodial cuticule with small brush-like process paraxially and setiform process antiaxially.

Legs. Armature of leg II with simple triangular spurs only on femur and genu; femur with small axillary process bearing seta and with adjacent distal protuberance (Fig. 6A). Coxa I with 7 small denticles on its paraxial, distal ridge (Fig. 6H). Coxa II with serrated denticulated ridge anterolaterally (Fig. 6I). Leg IV: trochanter with flattened protuberance on posterolateral side; femur with finger-like prominence posterolaterally on distal margin and with pd1 and pd2 setae pilose and short (Fig. 6E); tibia with one stout pilose, posterolateral seta (Fig. 6F); tarsus with pd2 simple and long, reaching base of pd1 (Fig. 6G). Measurments: tarsus I =115-129µm; tarsus IV =161-173µm. Specimens from near Noia (Sp 496) tarsus I =116µ; tarsus IV =159µ.

ETYMOLOGY

The new species is dedicated to Dr Claire Athias-Henriot who pioneered modern systematics of gamasid mites and stimulated me to carry on with my research on mites.

REMARKS

The male of *M. athiasae* subgen., sp. n. is characterized by the following combination of characters:

- Armature of leg II with a reduced axillary process bearing a seta; tibia without spurs.
- Genital lamina trapezoidal; rectangular denticulated sclerite situated between genital lamina and basis of tritosternum; genital orifice flanked by platelets.
- Chelicera with d.f. oligodont and d.m. with 7-8 denticles.

The female is unique among the Pergamasinae by having the combination of a peritrematal shield only anteriorly united to the dorsal shield, as in *Paragamasus*, and the d.m. of chelicera with 4 teeth, as in *Heteroparasitus*. Other peculiar characteristics are the shape of the endogynium and epigynium.

Specimens from near Noia (La Coruna) differ in some characters from specimens collected from other localities: in males the sternogenital cuticule has a different pattern with two parallel sclerotized lines between st2 and st5, the distal apophysis on femur II is absent (Fig. 6B), the distal spur on femur IV is shorter; in females the proportions of the epigynium are different.

The setal shape of the tarsi II (Fig. 6C) and IV (Fig. 6G, L) are different in *M. athiasae* and *H.coronarius*. For the moment I cannot evaluete the taxonomic importance of this observation because of insufficient knowledge of the setal pattern of tarsi II-IV in most Pergamasinae.

DISCUSSION

The genus *Holoparasitus* Oudemans, 1936 was divided by Juvara-Bals (1975) into three genera, *Holoparasitus* Oudemans, 1936, *Heteroparasitus* Juvara-Bals, 1975 and *Ologamasiphis* Holzmann, 1969. This decision was based on the following characters:

- Idiosomal chaetotaxy; idionotal cuticular systems; number of opisthogastric setae in both sexes.
- Females: fusion or separation of ventrianal shield with dorsal and peritrematal shields; number of teeth on d.m. of chelicera.
- Males: structure of the genital orifice and particularities of the leg II.

Holoparasitus comprises only the species whose characters are similar to those of the type species of *Holoparasitus* as defined by Hyatt (1987). *Ologamasiphis* is a valid genus. It differs from *Heteroparasitus* by the patterns of the idionotal systems and by details of the armature of the leg II (♂), the genital orifice (♂) and the epigynium and endogynium (♀).

Heteroparasitus is defined by a combination of features discussed in the present paper. *Medioparasitus* subgen. n. possesses a peculiar combination of characters, mainly in the female. Its peritrematal shield is free as in *Paragamasus* Hull, 1918. The digitus mobilis has 4 teeth as in *Heteroparasitus,* but unlike in other taxa included in Paragamasini sensu Juvara-Bals (1975) which all have only 3 teeth. The ventral gland pore gv1 is absent as in *Paragamasus (Meriadenogamasus)* from Nepal (Athias-Henriot, 1973) or in *Ologamasiphis* Athias-Henriot, 1971. The placement of *Medioparasitus* subgen. n. in the genus *Heteroparasitus* is uncertain at present. It is close to this genus by the number of opisthogastric setae, the structures of the genital orifice and of femur II in the male, and by the characters of the epigynium in the female. As mentioned above, the chaetotaxy and cuticular systems could not be properly studied because the available specimens were folded or crushed under the cover slides. However, the adenotaxy is deficient, lacking the gland pores gdj2, gdj4, gdz6, gdZ4 and gv1.

KEY TO THE GENERA OF PERGAMASINAE JUVARA-BALS, 1972
(Modified after Evans & Till, 1978 and Karg, 1993)

1 Tarsus I without claws and pulvillus; holodorsal shield attenuated posteriorly, its opisthonotal region with less than 12 pairs of setae; idiosoma length 490 µm, male unknown .... ***Pergamasellus*** Evans, 1957
Type species: *P. delicatus* Evans, 1957

- Tarsus I with claws and pulvillus; holodorsal shield not attenuated posteriorly, opistonotal region with more than 12 pairs of setae; idiosoma length 450-1400µm 2

2 Holodorsal, peritrematal and opisthogastric shields fused posteriorly in females and males, opisthogastric region with 8-9 pairs of ventral setae; movable digit of female chelicera with three teeth; idiosoma globular, well sclerotized, maximum length 950 µm . . . ***Holoparasitus*** Oudemans, 1936
Type species: *Gamasus calcaratus* Koch, 1839

- Female holodorsal and peritremal shield fused or separate, opistogastric shield free; in males all shields fused; movable digit of female chelicera with three or four teeth; idiosoma oval-shaped, rarely globular (in this case weakly sclerotized), maximum length 2060µm 3

3 Female holodorsal and peritrematal shields fused (except in the subg. *Medioparasitus*), opisthogastric shield free; male without transverse suture on dorsal shield; movable digit of female chelicera with four teeth . . . 4

- Female holodorsal shield anteriorly united with peritrematal shield, the latter fused or not fused with opisthogastric shield; male with or without transverse suture on dorsum idiosoma; movable digit of female chelicera with three or four teeth 5

4 Podonotal region with 18-22 pairs of setae, opisthonotal region hypertrichous; opistogastric shield with 11-32 pairs of ventral setae, tectum with 3-5 prongs; female with two big triangular presternal sclerites, epigynium triangular or subpentagonal; femur II of male with triangular or different- shaped apophysis; idiosoma oval–shaped, length 880 to 2060µm. . . . . ***Pergamasus*** Berlese, 1904
Type species: *Acarus crassipes* Linné sensu Berlese, 1906

- Podonotal region with 20 pairs of setae, opisthonotal regions with 21-23 pairs of setae; opisthogastric shield with 7 pairs of ventral setae, tectum trifid or triangular; female with presternal sclerites almost completly fused to sternal shield, with small triangular structures remaining, epigynium heptagonal; femur II of male with triangular apophysis and axillary process bearing seta; idiosoma globular, length less than 700µm . . . . ***Heteroparasitus*** Juvara-Bals, 1975
Type species: *Pergamasus tirolensis* Sellnick, 1968

a. Setae on dorsal scutum moderately long, not reaching line of the following setal row; female peritrematal shield fused with dorsal shield; gland pore gv1 present on sternal shield; tectum trifid; male leg II with one spur on femur, genu and tibia ; subgenital sclerite oval
. . . . Subgen. ***Heteroparasitus*** s. str.

b. Setae on dorsum scutum long, especially on opisthonotum, reaching mid-length of setae of the following setal row; female peritrematal shield free posteriorly; gv1 absent on sternal shield; tectum triangular; male leg II with spurs only on femur and genu; subgenital sclerite rectangular with denticles . . . . Subgen. ***Medioparasitus*** subgen. n.
Type species: *M. athiasae* sp. n.

5 Female dorsal and peritrematal shields united anteriorly, peritrematal shield fused with opisthogaster; extension of peritrematal shield behind stigmata discernible in male; male without transverse suture on idiosoma . . . 6

- Female dorsal and peritrematal shields united anteriorly, peritrematal shield free posteriorly; extension of peritrematal shield behind stigmata not recognizable in male; male with or without transverse suture on dorsum of idiosoma 9

6 Podonotal region with 19-20 pairs of setae, opisthonotal region polytrichous; palpgenual setae al1 and al2 bifid or fringed or foliaceous; presternal sclerites of female large, triangular, contiguous; movable digit of male chelicera with two teeth, subgenital sclerite present, idiosoma length 800-1200µm 7

- Podonotal region with 13-20 pairs of setae, opisthonotal region holotrichous (23-24 pairs of setae) or oligotrichous; palpgenual setae al1 and al2 truncate, presternal sclerites of female triangular, small, distant from each other or contigous; movable digit of male chelicera with one tooth, subgenital sclerite absent, idiosoma length 350-800µm 8

7 Palpgenual seta al1 bifid and al2 foliaceous; opisthogastric shield with 23-29 pairs of ventral setae, sclerocuticle wrinkled; movable digit of female chelicera with four teeth; idiosoma large, length 1000-1200µm . . . . ***Mixogamasus*** Juvara-Bals, 1972

Type species: *M. intermedius* Juvara-Bals, 1972

- Palpgenual setae al1and al2 fringed, opisthogastric shield with 11-16 pairs of ventral setae; sclerocuticle smooth; movable digit of female chelicera with three teeth and adjacent denticles between them; idiosoma length of male 787-896µm, of female 1028-1300µm . . . . ***Phytiogamasus*** Juvara-Bals & Athias-Henriot, 1972

Type species: *Parasitus primitivus* Oudemans, 1904

8 Podonotal region with 19-20 pairs of setae, opisthonotal region with 23-24 pairs: opisthogastric shield with 9-10 pairs of ventral setae; movable digit of male chelicera with one tooth, movable digit of female chelicera with four teeth; idiosoma length of male 350-800µm, of female 440-900µm . . . . ***Leptogamasus*** Trägardh, 1936

Type species: *L. suecicus* Trägardh, 1936

- Podonotal region with 13 pairs of setae, opisthonotal region with 12 pairs; opisthogastric shield with 7 pairs of ventral setae; movable digit of female chelicera with three teeth; idiosoma length of female 450µm, male unknown . . . . ***Zelogamasus*** Hennessy & Farrier, 1989

Type species: *Z. oligochaetus* Hennessy & Farrier, 1989

9 Podonotal region with 22-23 or 31-45 pairs of setae, opisthonotal region hypertrichous, with about 60 pairs of setae; opisthogastric shield with 11-30 pairs of ventral setae; palpgenual setae al1and al2 fringed; movable digit of male chelicera with two teeth; female genital pores iv5 near posterior margin of epigynium; presternal sclerites of female triangular, contiguous; idiosoma length of male 700-885µm, of female 1170-1300µm . . . . ***Amblygamasus*** Berlese, 1906

Type species: *Gamasus dentipes* Koch, 1839

- Podonotal region with 16-18 or 20-21 pairs of setae, opistonotal region oligotrichous or holotrichous; opisthogastric shield with 8-11 pairs of ventral setae; palpgenual setae al1 and al2 always entire, spatulate; male movable digit of chelicera with one or two teeth; female genital pores iv5 on soft cuticle between epigynium and opisthogaster; presternal sclerites of female triangular or ribbon-like, or in the shape of small triangular sclerites with intermediate sclerotizations, or fused with sternal shield; idiosoma length of male 420-1100µm, of female 450-1200µm 10

10 Podonatal region with 16-18 pairs of setae, opisthonotal region with 14-21 pairs of setae, opisthogaster shield with 7-8 pairs of setae; male movable digit of chelicera with 2 teeth, femur II without axillary process, genital opening without subgenital sclerite but with a sclerified tape (ribbon) linked with the anterior margin of sternal shield; female with presternal sclerites fused to sternal shield, idiosoma globular .... ***Ologamasiphis*** Athias-Henriot, 1971

Type species: *Pergamasus epigynialis* Willmann, 1940

- Podonotal region with 20-21 pairs of setae, opisthonotal region with 23-24 pairs of setae, opisthogastric shield with 11pairs of ventral setae; male movable chelicera with one or two teeth, femur with axillary process, genital opening with subgenital sclerites; presternal sclerites of female triangular or ribbon like or in the shape of small sclerites with intermediate sclerotizations; idiosoma oval .... ***Paragamasus*** Hull, 1918

Type species: *Parasitus robustus* Oudemans, 1902

COMMENTS ON THE KEY

During the last twenty years a large number of taxa have been described and a great variety of characters used in the descriptions of species and supraspecific taxa of Pergamasinae. Unfortunately, the descriptions were often inconsistent, resulting in divergent taxonomic concepts.

The aim of the present key is to give a practical tool for identification of the genera in Pergamasinae. No attempt was made to analyse the phylogenetic relationships, because important characters of some taxa remain unknown. This is particularly true for the characters common to both sexes, such as the idionotal pore-like systems (glands, poroids) and the leg chaetotaxy, especially that of the legs II and IV, as well as of the sensory field of the leg I. Characteristics of the idionotal systems are very important for the classification of the supraspecific taxa (Johnston & Moraza, 1991; Klompen *et al.*, 1996). These characteristics have been studied for only some of the genera presently placed in the Pergamasinae (Athias-Henriot, 1971 b, 1973; Juvara-Bals, 1972, 1975, 1981). A revision of the genera and subgenera is required for a better understanding of the supraspecific concepts in the subfamily.

Only the genus *Heteroparasitus* is keyed to subgeneric level in order to accommodate *Medioparasitus* in the system. Nevertheless, some clarifications concerning the subgenera *Leptogamasus* Trägardh, 1936 and *Paragamasus* Hull, 1918, and the genus *Ologamasiphis* Athias-Henriot, 1971 are given here.

The genus *Leptogamasus* includes three subgenera, i.e.: *Leptogamasus* Trägardh, 1936 (type species: *L. suecicus* Trägardh, 1936), *Ernogamasus* Athias-Henriot, 1971 (type species: *Pergamasus leruthi* Cooreman, 1951), *Tomeogamasus* Athias-Henriot, 1971 (type species: *Pergamasus falculiger* Berlese, 1906).

Valigamasus Karg, 1993 is a junior objective synonym of *Ernogamasus*, which is based on the same type species (syn. nov.). Diagnoses of the subgenera were given by Athias-Henriot (1971a, 1972) and by Juvara-Bals (1981) who raised the subgenera to genus rank. It is beyond the scope of this paper to further discuss the generic or subgeneric level of these insufficiently known taxa. I consider, however, for the moment, *Leptogamasus* as a genus with three subgenera.

Within *Paragamasus* Hull, 1918 nine subgenera were recognized (Athias-Henriot, 1971a, 1973) corresponding mainly to her " types d'organisation " (Athias-Henriot, 1967). Karg (1971) distinguished two subgenera within *Paragamasus* i.e.: *Paragamasus* Hull, 1918 and *Lysigamasus* Karg, 1971, which he later raised to generic level (Karg, 1993). The only given character separating the latter taxa is the shape of the presternal sclerites. *Paragamasus* Hull sensu Karg (1993) includes the subgenera *Paragamasus* s.str. and *Aclerogamasus* Athias-Henriot, 1971. *Lysigamasus* is a mixture of the subgenera *Anidogamasus*, *Anchigamasus*, *Dyogamasus* and *Tanygamasus* as proposed by Athias-Henriot (1971a). Karg's short diagnosis of this genus it is in need of some more accuracy and details. *Lysigamasus* is commonly used as valid but according to the International Code of Zoological Nomenclature (ICZN, 1999, art. 21.3) it is a junior subjective synonym of *Anidogamasus* Athias-Henriot, 1971. Both subgenera were described in 1971, with Athias-Henriot's paper issued on 17.05. 1971, but an exact date for Karg's description is unknown. A study of the groupings in *Paragamasus* is beyond the scope of this paper. The *Paragamasus* group needs a revision, which takes into account the characters of the idiosoma (chaetotaxy, adenotaxy, poroidotaxy) and of the leg chaetotaxy, and which finally rearranges the genus into taxa that correspond to natural groups. In the following key *Paragamasus* is considered as a genus with several subgenera.

The genus *Ologamasiphis* presents many problems and requires a thorough revision. Holzmann (1969) established *Ologamasiphis* as a subgenus in *Holoparasitus* for two species, *O. minimus* Holzmann, 1969 and *O. rotulifer* Willmann, 1940, but she did not designate a type species. Karg (1971) considered *O. rotulifer* sensu Holzmann 1969 as a new species that he named *Holoparasitus coronarius* and he supported *Ologamasiphis* as a subgenus of *Holoparasitus*, with three species, *H. (O.) coronarius*, *H. (O.) tirolensis* and *H. (O.) minimus* but he also did not designate a type species. According to the International Code of Zoological Nomenclature (ICZN, 1999, art. 13.3) the name *Ologamasiphis* Holzmann, 1969 is thus unvailable. Athias-Henriot (1971a) considered *Ologamasiphis* as a separate genus in which she included four species belonging to her "type d'organisation epigynalis". She designated *Pergamasus epigynalis* Willmann, 1940 as the type species and considered *O. minimus* Holzmann, 1969 synonymous with *O. disfistulatus* (Athias-Henriot, 1967). This synonymy has to be verified because the respective descriptions differ in some characters. It is impossible, for the moment, to compare *O. disfistulatus* with *O. minimus* because the latter species was deposited in the Holzmann collection, which was unfortunately mislaid. More research has to be carried out when this material becomes available again.

The species included by Athias-Henriot (1967,1971a) in *Ologamasiphis* belong to two groups, to which I attribute subgeneric status:

1 - *Ologamasiphis* sensu str., type species *P. epigynalis* (Willmann, 1940).

The following species are included: *O. parnethortus* (Athias-Henriot, 1967), *O. bulgatulus* (Athias-Henriot,1967), *O. turdetanus* (Athias-Henriot,1967), *O. judaeortus* (Athias-Henriot,1967).

Diagnosis: Podonotal region with18-20 pairs of setae, opisthonotum with 21-22 pairs of setae, adenotaxy with 4 pairs of podonatal and 3 pairs of opisthonotal gland-pores; on ventral idiosoma gv1 absent; in females peritrematal shield anteriorly fused with the margin of dorsal shield and posteriorly free, d.m. of chelicera with 3 teeth; in males a ribbon-like structure, instead of a subgenital sclerite, linked with anterior margin of sternal shield.

2 - *Ologamasiphis (Holzmannia)* **subgen. n.**, type species *Pergamasus disfistulatus* (Athias-Henriot, 1967), syn. *O. minimus* Holzmann, 1969.

Diagnosis: Podonotal region with 16 pairs of setae, opisthonotum with 20; adenotaxy with 4 pairs of podonotal and 2 pairs of opisthonotal gland-pores; on ventral idiosoma gv1 present; in females peritrematal shield fused with dorsal shield, d.m.of chelicera wih 3-4 teeth; in males subgenital sclerite absent.

I also assign to this new subgenus one unidentified specimen found in the Athias collection (slide H3/G 260) and the specimens which Juvara-Bals (1975) identified as *O. disfistulatus* which probably belong to a new species.

ACKNOWLEDGEMENTS

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